

**Maryland Commission on Kidney Disease
Chairman's Report
October 28 2021
Adam R. Berliner MD**

Update

- NKF-ASN Task Force on Assessing the Inclusion of Race in GFR estimating equations
- Final Recommendations Published in September

Background

Direct measurement of GFR is impractical for clinical use

GFR estimating equations are widespread and helpful

Cockcroft Gault (CrCl) → MDRD (eGFR) → CKD-EPI 2009 (eGFR)

eGFR Measurements Are Used For:

- Initial diagnosis of CKD
- Nephrologist Referral
- Medication Dosing
- Contrast Agents for Imaging
- Transplant Referral
- Clinical Trial Enrollment

MDRD

$$\text{GFR} = 175 \times (\text{Scr})^{-1.154} \times (\text{Age})^{-0.203} \times (0.742 \text{ if female}) \times (1.212 \text{ if African American})$$

CKD-EPI

$$\text{GFR} = 141 \times \min(\text{Scr}/\kappa, 1)^\alpha \times \max(\text{Scr}/\kappa, 1)^{-1.209} \times 0.993^{\text{Age}} \times (1.018 \text{ if female}) \times (1.159 \text{ if African American})$$

* S_{cr} is serum creatinine in mg/dL
 κ is 0.7 for females and 0.9 for males
 α is -0.329 for females and -0.411 for males
 min indicates the minimum of S_{cr}/κ or 1
 max indicates the maximum of S_{cr}/κ or 1

CKD-EPI 2009 Equation for GFR Estimation

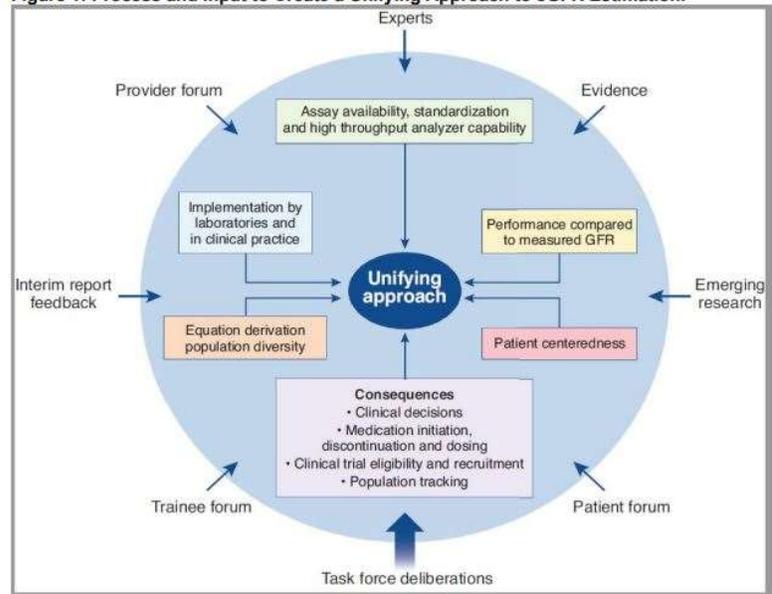
Inclusion of Race in GFR Estimation

- “Race is a social, not a biologic, construct”
- Race-based GFR estimates likely contribute to health care disparities
 - -late referral for nephrology consultation
 - -late referral for transplant
- We can and should do better

NKF-ASN Task Force

- nephrology
- pharmacy
- genetics
- epidemiology
- health policy
- history
- cultural studies
- laboratory analysis

Figure 1: Process and Input to Create a Unifying Approach to eGFR Estimation.



Delgado et. al. JASN September 2021.

A Unifying Approach for GFR Estimation: Recommendations of the NKF-ASN Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Disease



Recommend immediate implementation of the *CKD-EPI creatinine equation refit without the race variable* in all laboratories in the U.S.

The equation refit excludes race in the calculation and reporting, includes diversity in its development, is immediately available to all labs in the U.S., and has acceptable performance characteristics and potential consequences that do not disproportionately affect any one group of individuals.



Recommend national efforts to facilitate increased, routine, and timely use of cystatin C, especially to confirm eGFR in clinical decision-making



Encourage and fund research on GFR estimation with new endogenous filtration markers and on interventions to eliminate racial and ethnic disparities



The Task Force gathered input from diverse stakeholders and carefully reviewed the evidence to create these recommendations

Cynthia Delgado, Mukta Baweja, Deldra C. Crews, et al. *A Unifying Approach for GFR Estimation: Recommendations of the NKF-ASN Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Disease.* AJKD DOI: 10.1053/j.ajkd.2021.08.003, JASN DOI: 10.1681/ASN.2021070988
Visual Graphic by Edgar Lerma, MD, FASN



Current CKD-EPI (2009) Equation

- Overestimates measured GFR in Blacks by median 3.7 mL/min/1.73m²

New CKD-EPI (2021) Equation

- -Underestimates GFR by 3-4 mL/min/1.73m² in Blacks
- Overestimates GFR by 1-4 mL/min/1.73m² in non-Blacks

Incorporating cystatin-C values into new equations is even more precise

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- New CKD-EPI (2021) creatinine-based GFR estimating equation is not perfect (in terms of agreement with measured GFR), but the degree of variability from measured GFR is still small
- Importantly, any inaccuracy in the eGFR, as compared to true measured GFR, is spread evenly across race/ethnicities, without disproportionately biasing against any 1 group
- **“Both existing and newly derived equations have strengths and weaknesses, and change invariably induces unanticipated consequences. Most important, however, is that estimates do no harm but rather help us care for all patients equally.**